UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,795	11/15/2001	Michael L. Reed	10055 (NCRC-0061-US)	5289

26890 7590 02/24/2004

JAMES M. STOVER
NCR CORPORATION
1700 SOUTH PATTERSON BLVD, WHQ4
DAYTON, OH 45479

EXAMINER	
ALI, MOHAMMAD	

ART UNIT	PAPER NUMBER
2177	

DATE MAILED: 02/24/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/002,795	Applicant(s) REED ET AL.	
	Examiner Mohammad Ali	Art Unit 2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The application has been examined. Claims 1-37 are pending in this Office Action.

Specification

2. Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

Field of the invention is missing. Appropriated correction is required.

(f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of

> the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

Summary of the invention is not sufficiently described.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Woodhill et al. ('Woodhill' hereinafter), US Patent 5,649,196 in view of MacLeod et al. ('MacLeod' hereinafter), US Patent 6,434,558.

With respect to claim 1,

Woodhill a process for use in a database system (see col. 6, lines 38-39, Fig. 2), comprising:

storing data according to a first user-defined data type in a table (program control continues where a user-defined priority is assigned to the file and stored in the File Priority field of the Backup Queue Record, see col. 6, lines 11-15, Fig. 2, Woodhill);

associating at least a first compression routine with the first user-defined data type (compression Routine executing the functions of the routine. The Backup/Restore Routine, the Local Storage Routine and the compression Routine executed on each of the local computers on the networked computer system while the Resource Allocation Routine is executed on only one of the local computers on the networked computer system, see col. 10, lines 49-59, Woodhill); and

using the first compression routine to compress the data according to the first user-defined data type (the Distributed Storage Manager program performs two concurrent backup operations. The Distributed Storage Manager program stores compressed copy of every binary object it would need to restore every disk drive on every local computer somewhere on the local area network other than on the local computer on which it normally resides. The Distributed Storage Manager program transmits every new or changed binary object to the remote backup file server. Binary

objects that are available in compressed form on the local area network can be restored very quickly while the much greater storage capacity on the remote backup file server ensures that at least one copy of every binary object is stored and that a disaster that destroys an entire site would not destroy all copies of that site's data, see col. 9, lines 30-44, Woodhill).

Woodhill does not explicitly indicate the claimed "table" when user-defined data type.

MacLeod disclose the claimed "table" when user-defined data type (data stored in a relational database is accessed by way of a user-defined query that is constructed in a query language such as SQL. For any given SQL query there are numerous procedural operations that need be performed on the data in order to carry out the objectives of the SQL query. There are numerous joins and table scans that need to be performed so as to accomplish the desired objective, see col. 5, lines 53-60 et seq).

It would have obvious to one ordinary skill in the data processing art, at the time of the present invention to combine the teachings of the cited references, because the table when user-defined data type of MacLeod's teachings would have allowed Woodhill's system to allow the tables are tracked by attaching lineage information to the data by adding a lineage identifier to each row in a table as suggested by MacLeod at col. 1, lines 66 to col. 2, lines 2. Table when user-defined data type as taught by MacLeod improves to trace the history data in a table when data has made several hops among databases (see col. 2, lines 15-7, MacLeod).

As to claim 2,

Woodhill further comprising using a second compression routine to compress the data to improve compression efficiency (see col. 9, lines 60 to col. 10, lines 7).

As to claim 3,

Woodhill wherein using the first and second compression routines comprises using user-defined data type methods (see col. 6, lines 32-34).

As to claim 4,

Woodhill wherein using the user-defined data type methods comprises using methods built in with the first user-defined data type (see col. 6, lines 11-15).

As to claim 5,

Woodhill wherein using the first compression routine comprises using a first compression method built in with the first user-defined data type (col. 6, lines 11-15).

As to claim 6,

Woodhill further comprising providing a user-defined method executable to invoke the first compression method (col. 10, lines 60-63, Fig. 1).

As to claim 7,

Woodhill further comprising invoking the user-defined method to invoke a second compression method built in with the first user-defined data type (col. 6, lines 11-15 et seq).

As to claim 8,

Woodhill wherein invoking the user-defined method comprises invoking the user-defined method to alter compression efficiency ('effrctiveness') (col. 10, lines 65 to col. 1, lines 2 et seq).

As to claim 9,

Woodhill further comprising providing a second user-defined data type built upon the first user-defined data type (see col. 6, lines 32-34 et seq).

As to claim 10,

Woodhill further comprising storing a first type of data using the first user-defined data type and storing a second type of data using the second userdefined data type (see col. 6, lines 11-34).

As to claim 11,

Woodhill further compnising using a second compression routine to compress the second type of data (see col. 13, lines 62 to col. 14, lines 10 et seq).

As to claim 12,

Woodhill further comprising inheriting at least a data structure and at least a built-in method ftom the first. user-defined data type into the second userdefined data type (see col. 3, lines 39-40).

With respect to claim 13,

Woodhill an article comprising at least one storage medium containing instructions that when executed cause a system (see col. 10, lines 60-63, Fig. 1) to:

store data according to a first user-defined data type (program control continues where a user-defined priority is assigned to the file and stored in the File Priority field of the Backup Queue Record, see col. 6, lines 11-15, Fig. 2, Woodhill); and

associate a first compression routine with the first user-defined data type for compressing the data (compression Routine executing the functions of the routine. The

Backup/Restore Routine, the Local Storage Routine and the compression Routine executed on each of the local computers on the networked computer system while the Resource Allocation Routine is executed on only one of the local computers on the networked computer system, see col. 10, lines 49-59, Woodhill).

Woodhill does not explicitly indicate the claimed "table" when user-defined data type.

MacLeod disclose the claimed "table" when user-defined data type (data stored in a relational database is accessed by way of a user-defined query that is constructed in a query language such as SQL. For any given SQL query there are numerous procedural operations that need be performed on the data in order to carry out the objectives of the SQL query. There are numerous joins and table scans that need to be performed so as to accomplish the desired objective, see col. 5, lines 53-60 et seq).

It would have obvious to one ordinary skill in the data processing art, at the time of the present invention to combine the teachings of the cited references, because the table when user-defined data type of MacLeod's teachings would have allowed Woodhill's system to allow the tables are tracked by attaching lineage information to the data by adding a lineage identifier to each row in a table as suggested by MacLeod at col. 1, lines 66 to col. 2, lines 2. Table when user-defined data type as taught by MacLeod improves to trace the history data in a table when data has made several hops among databases (see col. 2, lines 15-7, MacLeod).

As to claim 14,

Woodhill wherein the instructions when executed cause the system to associate a second compression routine with the first user-defined data type, the first and second compression routines (see col. 6, lines 11-34) providing different compression algorithms (see col. 8, lines 14-24 et seq).

As to claim 15,

Woodhill wherein the instructions when executed cause the system to provide the first compression routine as a method built in with the first user-defined data type (see col. 6, lines 11-15).

As to claim 16,

Woodhill wherein the instructions when executed cause the system to provide the second compression routine as a inethod built in with the first user-defined data type (see col. 6, lines 11-34).

As to claim 17,

Woodhill wherein the instructions when executed cause the system to associated a first data structure with the first user- defined data type, the first data structure to indicate a type of compression applied on a data object (see col. 3, lines 37-44 et seq).

As to claim 18,

Woodhill wherein the instructions when executed cause the system to associate a second data structure with the first user-defined data type, the second data structure to indicate a percentage amount of compression of the data object (see col. 3, lines 37-44).

As to claim 19,

Woodhill wherein the instructions when executed cause the system to access the first and second data structures of the data object when accessing the data object (see col. 3, lines 37-44 et seq).

As to claim 20,

Woodhill wherein the instructions when executed cause the system to store the data object in a relational table (see col. 13, lines 8-21).

As to claim 21,

Woodhill wherein the instructions when executed cause the system to store the data object in a relational table distributed across multiple access modules (see col. 18, lines 49-54).

As to claim 22,

Woodhill wherein the instructions when executed cause the system to provide a second user-defined data type built upon the first user-defined data type (see col. 6, lines 11-34).

As to claim 23,

Woodhill wherein the instructions when executed cause the system to provide a second user-defined data type built upon the first user-defined data type (see col. 6, lines 11-34).

As to claim 24,

Woodhill wherein the instructions when executed cause the system to inherit the first compression routine from the first user-defined data type into the second user-defined data type (see col. 6, lines 11-34).

As to claim 25,

Woodhill wherein the instructions when executed cause the system to: associate a second compression routine with the first user-defined data type (see col. 6, lines 11-34); and

inherit the second compression routine from the first user-defined data type into the second user-defined data type (see col. 6, lines 11-34).

As to claim 26,

Woodhill wherein the instructions when executed cause the system to: store a first type of data using the first user-defined data type (see col. 6, lines 11-34); and

store a second type of data using the second user-defined data type (see col. 6, lines 11-34 et seq).

With respect to claim 27,

Woodhill a database system (see col. 1, lines 67 to col. 2, lines 11), comprising:

a storage system to store at least a table (program control continues where a user-defined priority is assigned to the file and stored in the File Priority field of the Backup Queue Record, see col. 6, lines 11-15, Fig. 2, Woodhill);

a plurality of compression routines to apply respective different compression algorithms (the Binary Object LRC field set equal to the standard Longitudinal Redundancy Check number calculated against the contents of the binary object taken four (4) bytes (32 bits) at a time using the following algorithm. The Binary Object Hash field is calculated against the contents of the binary object taken one (1) word (16 bits) at a time using the algoritm); and

a controller adapted to invoke one of plurality of compression routines to compress data stored in the table (the Distributed Storage Manager program performs two concurrent backup operations. The Distributed Storage Manager program stores compressed copy of every binary object it would need to restore every disk drive on every local computer somewhere on the local area network other than on the local computer on which it normally resides. The Distributed Storage Manager program transmits every new or changed binary object to the remote backup file server. Binary objects that are available in compressed form on the local area network can be restored very quickly while the much greater storage capacity on the remote backup file server ensures that at least one copy of every binary object is stored and that a disaster that destroys an entire site would not destroy all copies of that site's data, see col. 9, lines 30-44, Woodhill).

Woodhill does not explicitly indicate the claimed "table".

MacLeod disclose the claimed table (data stored in a relational database is accessed by way of a user-defined query that is constructed in a query language such as SQL. For any given SQL query there are numerous procedural operations that need be performed on the data in order to carry out the objectives of the SQL query. There are numerous joins and table scans that need to be performed so as to accomplish the desired objective, see col. 5, lines 53-60 et seq).

It would have obvious to one ordinary skill in the data processing art, at the time of the present invention to combine the teachings of the cited references, because the table of MacLeod's teachings would have allowed Woodhill's system to allow the tables

are tracked by attaching lineage information to the data by adding a lineage identifier to each row in a table as suggested by MacLeod at col. 1, lines 66 to col. 2, lines 2. Table as taught by MacLeod improves to trace the history data in a table when data has made several hops among databases (see col. 2, lines 15-7, MacLeod).

As to claim 28,

Woodhill wherein the table includes a relational table and the data is stored in a first attribute of the relational table (see col. 15, lines 24-38).

As to claim 29,

Woodhill wherein the first attribute is according to a first user-defined data type (see col. 6, lines 11-34).

As to claim 30,

Woodhill wherein the plurality of compression routines are methods built in with the first user-defined data type (see col. 6, lines 11-34).

As to claim 31,

Woodhill the storage system to store a second table having a second attribute according, to a second user-defined data type built upon the first user-defined data type (see col. 6, lines 11-34).

As to claim 32,

Woodhill wherein the controller is adapted to invoke another one of the compression routines to alter compression of the data (see col. 13, lines 50-61).

As to claim 33,

Woodhill wherein the controller is adapted to invoke another one of the compression routines in response to a. Structured Query Language UPDATE statement (see col. 17, lines 40-46 et seq).

As to claim 34,

Woodhill wherein the controller comprises a user-defined method (see col. 6, lines 11-34).

As to claim 35,

Woodhill wherein the plurality of compression routines comprise methods built in with the first user-defined data type (see col. 6, lines 11-34), the user-defined method executable to invoke the methods built in with the first user-defined data type (see col. 6, lines 11-34 et seq).

As to claim 36,

Woodhill further comprising a plurality of access modules adapted to manage access to respective portions of the storage system (see col. .

As to claim 37,

Woodhill wherein the table is distributed across multiple access modules (see col. 18, lines 49-54 et seq).

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790 or Customer Service (703) 306-5631. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for any communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali

Patent Examiner

AU 2177

MA

February 18, 2003